

REMARKS

Reconsideration of the above-identified application in view of the foregoing amendments and following remarks is respectfully requested.

A. Status of the Claims and Explanation of Amendments

Claims 1-23 were previously pending. By this paper, claims 1, 10, 18, 19 and 21-23 have been amended for clarity and to address formal matters. These amendments are not made for any substantial reason related to patentability (*i.e.*, §§ 102 or 103). Claim 16 has been cancelled without prejudice or disclaimer, and claim 17 has been amended to depend from pending claim 15 (instead of cancelled claim 16) and also to incorporate the elements of former claim 16.

New claims 24-26 have been added. Claim 24 recites "said ion-exchange resin is fluorinated." Support for this claim is found throughout the originally filed specification, including for example at page 10, line 18-20. Claim 25 recites "the polymeric sheet has a thickness between 13 microns and 50 microns." Support for this claim is found throughout the originally filed specification, including for example at page 7, line 14-15. Claim 26 recites "the gel comprises a polymer with a cross-linked structure." Support for this claim is found throughout the originally filed specification, including for example at page 10, lines 10-14.

In addition, certain typographic errors in the specification have been corrected.

No new matter will be added to this application by entry of these amendments. Entry is requested.

Two double patenting rejections were lodged in the office action. First, claims 1 and 16 were rejected under 35 U.S.C. § 101 as allegedly claiming the "same invention" as that of claim 1 of prior U.S. Patent No. 6,635,384 to Bahar ("Bahar '384 patent"). [4/28/05 Office

Action at p. 3]. Second, claims 1, 3, 4, 6, 8, 10 and 17 were rejected under the judicially created doctrine of "obviousness-type" double patenting over claims 1, 6, 12, 13 and 22 of U.S. Patent No. 6,242,135 to Mushiake ("Mushiake"). [4/28/05 Office Action at p. 2].

As to the merits, all of the pending claims were alleged to be anticipated or obvious. Claims 1, 3 and 8 were rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 3,497,394 to Berger ("Berger"). [4/28/05 Office Action at p. 3]. Claims 2, 4-7, 9, 11-12, 15 and 18 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Berger in view of U.S. Patent No. 5,336,573 to Zuckerbrod et al. ("Zuckerbrod"). [4/28/05 Office Action at p. 4]. Claims 10, 13-14 and 16-23 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Berger in view of U.S. Patent No. 5,521,023 to Kejha et al. ("Kejha"). [4/28/05 Office Action at p. 5].

Applicants discuss below the differences between the three cited references and the pending claims. However, Applicants respectfully suggest that the Section 103 rejections stated in the present office action are unclear. Such Section 103 rejections require the following four showings:

- A. the relevant teachings of the prior art relied upon, preferably with reference to the relevant column or page number(s) and line number(s) where appropriate,
- B. the difference or differences in the claim over the applied reference(s),
- C. the proposed modification of the applied reference(s) necessary to arrive at the claimed subject matter, and
- D. an explanation why one of ordinary skill in the art at the time the invention was made would have been motivated to make the proposed modification.

(MPEP § 706.02(j))

Applicants respectfully suggest that the differences between Applicant's claims and the cited references, and the proposed modifications have not been clearly identified. To the extent that the rejections are maintained or restated, the examiner is respectfully requested to

clearly identify the subject matter in the pending claims that is admitted not to be found in the primary reference. Such identification, Applicants assert, will aid in expediting prosecution of this application.

B. The Double Patenting Rejections Should be Withdrawn

The rejection of claims 1 and 16 for “same invention”-type double patenting is respectfully traversed. As to claim 16, which has been cancelled, the rejection is now moot. Applicants also note that the present patent application is related to U.S. Patent Application Serial No. 09/828,866 (which ultimately issued as the Bahar '384 patent), and claims priority to this earlier application as a continuation. The term “same invention,” in the context of a double patenting rejection, means an invention drawn to *identical* subject matter. See MPEP § 804 (at 800-20) (citing *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957)). As shown below, pending claim 1 is not identical to claim 1 of the Bahar '384 patent:

Pending Claim 1

A polymeric membrane for use in an electrochemical apparatus or process comprising:

- a) a polymeric sheet comprising polymer and having a porous structure,
- b) said polymeric sheet having distributed in the polymer: i) inorganic particulate; ii) metal; iii) an organic polymer; or iv) a combination thereof, and
- c) said porous structure being at least partially filled with an ion-exchange resin to provide ionic conductance for use in the electrochemical apparatus or process.

Claim 1 of the Bahar '384 patent

A composite membrane for use in an electrochemical apparatus or process comprising:

- a polymeric sheet comprising polymer and having a porous structure,
- said polymeric sheet having distributed in the polymer: inorganic particulate, metal: an organic polymer: or a combination thereof, and
- said porous structure being at least partially filled with an ion-exchange resin to provide ionic conductance for use in the electrochemical apparatus or process;
- wherein said membrane is disposed between two fuel cell electrodes,

Pending Claim 1

Claim 1 of the Bahar '384 patent

wherein, said membrane provides a steady state current of at least 1.178 amps/cm² at 0.5 volts, with no humidification of incoming fuel cell air and hydrogen reactants, with air and hydrogen feed both at 40 psig and 25° C., and the fuel cell temperature at 50° C.

As set forth in MPEP § 804 (at 800-20), “[a] reliable test for double patenting under 35 U.S.C. 101 is whether a claim in the application could be literally infringed without literally infringing a corresponding claim in the patent.” See also *In re Vogel*, 422 F.2d 438, 441, 164 USPQ 019, 622 (CCPA 1970) (“A good test ... is whether one of the claims could be literally infringed without literally infringing the other.”)

Respectfully, Applicants assert that the scope of pending claim 1 differs from the scope of claim 1 of the Bahar '384 patent. The pending claim in the application could be literally infringed without literally infringing corresponding claim 1 in the Bahar '384 patent. As such, the “reliable test” for double patenting under 35 U.S.C. § 101 shows that the “same invention” double patenting rejection should be withdrawn as to pending claim 1.

As to the rejection of claims 1, 3, 4, 6, 8, 10 and 17 for “obviousness-type” double patenting over claims 1, 6, 12, 13 and 22 of Mushiakhe, this rejection also is traversed because the pending claims have not been shown to be obvious variations of the specified claims of Mushiakhe. Again, Applicants note that the present application is related to U.S. Patent Application Serial No. 08/928,207 (which ultimately issued as Mushiakhe), and claims priority to this earlier application as a division.

Although the analysis employed in an obviousness-type double patenting rejection parallels the guidelines for analysis of a 35 U.S.C. § 103 obviousness determination, no such analysis was provided by the office action. *In re Braat*, 937 F.2d 589, 19 USPQ2d 1289

(Fed. Cir. 1991); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985). As discussed above at page 9, this analysis includes an identification of any admitted differences, and an explanation of any alleged motivation to modify. If this rejection is maintained, a more complete analysis is respectfully requested.

In any case, there are numerous differences between pending claims 1, 3, 4, 6, 8, 10 and 17 and claims 1, 6, 12, 13 and 22 of Mushiake. The former incorporates inorganic particulate, metal, organic polymer or combinations thereof, while the latter is limited to metal oxide. Moreover, the former “distributes” these materials “in the polymer.” Applicants’ Example 3 illustrates this concept, and describes addition of fumed silica to a PTFE aqueous dispersion followed by extrusion and expansion. By contrast, Mushiake involves a surface coating of the metal oxide. The office action does not explain why it would have been obvious to one of ordinary skill in the art to modify the structures of claims 1, 6, 12, 13 and 22 of Mushiake to achieve the subject matter of pending claims 1, 3, 4, 6, 8, 10 and 17. Accordingly, withdrawal is requested.

C. Claims 1-15 and 17-23 are Patentably Distinct from the Cited References

The rejections of pending claims 1-15 and 17-23 also are respectfully traversed. As explained more fully below, the requirements for such rejections are not met since the references taken alone or in combination fail to teach, disclose or suggest all of the claimed features, and since there is no proper motivation to combine the various references to arrive at Applicants’ claimed inventions.

Applicants’ claim 1 recites:

1. A polymeric membrane for use in an electrochemical apparatus or process comprising:

- a) a polymeric sheet comprising polymer and having a porous structure,
- b) said polymeric sheet having distributed in the polymer:
 - i) inorganic particulate;
 - ii) metal;
 - iii) an organic polymer; or
 - iv) a combination thereof, and
- c) said porous structure being at least partially filled with an ion-exchange resin to provide ionic conductance for use in the electrochemical apparatus or process.

Berger is directed to an inorganic permselective membrane with insoluble hydrous metal oxides or acid salts. As shown in the sole figure, the membrane (10) has a strong, rigid core structure (12) perforated with interconnecting pores (14). [Col. 19, lns. 1-5].

Applicants understand the office action to allege that the core structure (12) corresponds to Applicants' claimed polymeric sheet. [04/28/05 Office Action at p. 3]. Support for this assertion allegedly is found at column 2, lines 46-72. The only possible mention in that passage of a polymeric structure is to "a strong porous plastic." [Col. 2, ln. 65]. Elsewhere, Berger describes his core structure as "rigid," [Col. 2, ln. 47], and as "strong, substantially insoluble, material capable of formation into a relatively thin plate." [Col. 2, lns. 60-62]. Indeed, the "membranes" in the examples are on the order of 630 to 910 microns thick and made of the non-polymeric material zirconia, which structures presumably would be rigid at room temperature.

Ion exchange gel (16) allegedly is present in Berger's pores (14). [Col. 19, lns. 5-10]. The office action asserts that this gel corresponds to Applicants' claimed ion exchange resin. [04/28/05 Office Action at p. 3 (citing column 3, lines 26-33)]. Applicants' respectfully disagree.

The word "gel" conventionally refers to a colloid (i.e., a substance that consists of particles dispersed throughout another substance which are too small for resolution with an

ordinary light microscope) in a more solid form than a sol. [Webster's Ninth New Collegiate Dictionary, pp. 260, 509 (1991) (attached as Exhibit 1)]. Consistent with this definition, Berger discusses the inclusion of "water-insoluble solids" in his hydrous metal oxides as well as "an indeterminate quantity of water." [Col. 2, lns. 69-71]. Such substances would not be considered to be resins, in the conventional use of the term.

Berger's disclosure and examples never refer to ion exchange resins. Berger describes that his gel is formed by "precipitating either an insoluble hydrous metal oxide or an acid salt from aqueous solution." [Col. 3, lns. 31-35]. Such metal oxides or acid salts would not be considered to be polymers. No other types of gels are disclosed by Berger. In Berger's example 1, an indium oxide hydrous gel is formed. All of Berger's fifty-seven examples discuss forming an ion exchange gel, as opposed to ion exchange resins. In sum, Berger's gels could not fairly be considered to be an "ion exchange resin," a "polymeric gel" or "a polymer composition"¹ at least partially filling the porous structure as recited in Applicants' claims.

The two secondary references cited by the office action, Zuckerbrod and Kejha, do not alleviate this deficiency. Zuckerbrod is directed to a battery separator,² which the office action alleges is formed from a microporous sheet that may include distributed silica, fumed silica, titania and particulates or carbon. [04/28/05 Office Action at p. 4]. However, there is no allegation in the office action of any disclosure incorporating ion exchange resin into the

¹ "Polymeric gels" and "polymer compositions" within the meaning of Applicants' invention are illustrated at pages 9-10 of Applicants' specification. The former involve the use of polymers that absorb and gel an electrolyte. The latter involve the use of polymers that contain electrolytes. As discussed above, Berger's gels do not involve the use of polymers.

² Zuckerbrod defines a "separator" as "a component of a battery which provides a means of separation between adjacent electrode plates or members of opposite polarity." [Col. 3, lns. 60-62].

microporous sheet. To the contrary, Zuckerbrod suggests that his separator is “composed of a substantially uniform mixture of a polymer and filler” that encapsulates a porous sheet. [Col. 3, lns. 41-48].

Kejha is directed to a composite electrolyte for electrochemical devices. Kejha’s composite is formed from an inert electrically insulating ribbon or sheet and an ion-conductive polymer. [Col. 1, ln. 62 – Col. 2, ln. 6]. Although the sheet is described as being expanded or perforated, the ion-conductive polymer is coated onto the ribbon, and then cured to form a top layer. [Col. 3, lns. 12-20; Figure 1]. For example, in Kejha’s Figure 1, a polymeric material (17) is coated on top of a ribbon (15).

The polymeric material (17) is comprised of (i) an ion conductive liquid complexed with an alkali metal, or alkaline earth metal trifluoromethane sulfonate salt and (ii) polyethylene oxide. The office action apparently concedes that this material would not constitute an “ion exchange resin” as in Applicants’ claim 1, but alleges that this polymeric material constitutes “a polymeric gel” as recited in Applicants’ claim 18. However, the word “gel” is used nowhere in Kejha’s disclosure in connection with the polymeric material. At best, the citation to column 2, lines 7-9 shows that the material is “solid or semi-solid,” but does not show that it is a gel.

Moreover, the polymeric material (17) is on top of and is not filling the ribbon material. [See Figure 1]. Indeed, Kejha describes the ribbon (15) as being embedded in the polymeric material. [Col. 2, lns. 7-12; Col. 5, lns. 52-55].

In sum, Applicants cannot find in any of the cited references a teaching, disclosure or suggestion of an “ion exchange resin,” a “polymeric gel” or “a polymer composition” at least partially filling the porous structure as recited in Applicants’ claims.

In addition to the deficiencies in the cited references, the stated Section 103 rejections also lack proper motivation to modify or combine the selected aspects of these disclosures. For example, the rejection of claims 10, 13, 14 and 16-23 over Berger in view of Kejha states:

“Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to insert the teachings of Kejha et al., in the teachings of Berger because Kejha et al., discloses that PTFE is inert to battery chemistry and therefore improves battery cyclability.”

This alleged motivation does not explain why one of skill in the art would have been motivated – absent Applicants’ own disclosure – to:

- fill substantially all pores of the expanded porous PTFE with ion-exchange resin as in claim 10;
- distribute an organic polymer within the polymeric sheet as in claim 13;
- have a polymeric sheet with a thickness of less than 50 microns as in claims 14, 18, and 22, or a thickness of less than 38 microns as in claim 17;
- substantially fill the porous structure with a polymeric gel that contains electrolyte as in claim 19;
- at least partially fill or substantially the porous structure with a polymer composition that contains metal salts as in claims 20 and 21; and
- have a polymeric sheet with a porosity of 40% to 95% as in claim 23

Likewise, the alleged motivation stated by the office action in connection with the rejection of claims 2, 4-7, 9, 11-12, 15 and 18 is general, and fails explain why one of ordinary skill in the art would be motivated to remedy the specific deficiencies of Berger by cobbling together Berger’s disclosure with discrete portions of Zuckerbrod’s disclosure.

Moreover, Applicants respectfully assert that one of ordinary skill in the art at the relevant time would not have been motivated to substitute Kejha’s PTFE material or

Zuckerbrod's thin thermoplastic polymers for Berger's rigid, strong membrane. As mentioned above, Berger contemplates that his core structure (12) is rigid. The "membranes" used by Berger are on the order of 630 to 910 microns thick, substantially thicker than the 0.06 mil or 1.5 micron thick ribbon material mentioned by Kejha. [Col. 3, Ins. 25-27]. Applicants assert that one of ordinary skill in the art would not regard Kejha's PTFE ribbon that is 1.5 microns thick to be rigid, as required by Berger. Likewise, Zuckerbrod requires the use of a thermoplastic polymer for his microporous sheet. [Col. 4, Ins. 51-52]. Zuckerbrod expressly describes these sheets as "flexible," [Col. 3, Ins. 21-24], and discusses ways to further impart flexibility. [Col. 7, Ins. 17-20] Accordingly, Berger teaches away from the proposed modification (i.e., the use of the flexible structures of Kejha and Zuckerbrod).

As such Applicants respectfully suggest that proper motivation to modify and combine the cited references to achieve Applicants' claimed inventions is absent, and the rejection should be withdrawn.

Accordingly, at least independent claims 1, 18 and 20, and their dependent claims 2-17, 19, and 21-26 are respectfully asserted to be in condition for allowance.

Applicants have chosen in the interest of expediting prosecution of this patent application to distinguish the cited documents from the pending claims as set forth above. These statements should not be regarded in any way as admissions that the cited documents are, in fact, prior art. Applicants also have not specifically addressed the rejections of the dependent claims. Applicants respectfully submit that the independent claims, from which they depend, are in condition for allowance as set forth above. Accordingly, the dependent claims also are in condition for allowance. Applicants, however, reserve the right to address such rejections of the dependent claims in the future as appropriate.

Appl. No. 10/657,096
Paper dated August 15, 2005
Reply to Office Action dated April 28, 2005

CONCLUSION

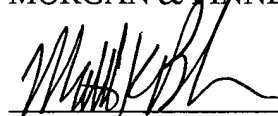
For the above-stated reasons, this application is respectfully asserted to be in condition for allowance. An early and favorable examination on the merits is requested. In the event that a telephone conference would facilitate the examination of this application in any way, the examiner is invited to contact the undersigned at the number provided.

THE COMMISSIONER IS HEREBY AUTHORIZED TO CHARGE ANY ADDITIONAL FEES WHICH MAY BE REQUIRED FOR THE TIMELY CONSIDERATION OF THIS AMENDMENT UNDER 37 C.F.R. §§ 1.16 AND 1.17, OR CREDIT ANY OVERPAYMENT TO DEPOSIT ACCOUNT NO. 13-4500, ORDER NO. 0769-4624US5.

Respectfully submitted,
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Dated: August 16, 2005

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colle-gial \kə-'lɛ-j(ə)-əl, esp. for 2a also -'lɛ-gē-əl/ *adj.* (14c) 1: COLLEGIATE 2: a: marked by power or authority vested equally in each of a number of colleagues b: characterized by equal sharing of authority esp. by Roman Catholic bishops — **colle-gial-ly** \-ē-əl *adv.*
colle-gi-al-ity \-lɛ-j(ə)-al-ə-ti, -lɛ-gē-/ *n.* (1887): the relationship of colleagues; *specif.*: the participation of bishops in the government of the Roman Catholic Church in collaboration with the pope
colle-gian \kə-'lɛ-j(ə)-ən/ *n.* (14c): a student or recent graduate of a college

colle-giate \kə-'lɛ-j(ə)-ət/ *adj.* [ML *collegiatus*, fr. L *collegium*] (15c) 1: of or relating to a collegiate church 2: of, relating to, or comprising a college 3: COLLEGIATE 4: designed for or characteristic of college students — **colle-giate-ly** *adv.*

colle-giate church *n.* (15c) 1: a church other than a cathedral that has a chapter of canons 2: a church or corporate group of churches under the joint pastorate of two or more ministers

colle-gium \kə-'lɛ-g-əm, -'lɛ-g-/ *n.* *pl.* -gia \-ē-ə/ or -gi-ums [modif. of Russ *kollegiya*, fr. L *collegium*] (1917): a group in which each member has approximately equal power and authority

collem-bo-lan \kə-'lɛm-bə-lən/ *n.* [deriv. of *coll-* + Gk *embolos* wedge, stopper — more at *EMBOLUS*] (1873): any of an order (Collembola) of small primitive wingless arthropods related to or classed among the insects — called also *springtail* — **collembolan** or **collem-bo-lous** \-lɔ-/ *adj.*

col-len-chen-ya \kə-'lɛn-kə-mə, -kə-/ *n.* [NL] (1857): a plant tissue of living usu. elongated cells with walls variously thickened esp. at the angles but capable of further growth — compare *SCLERENCHYMA* — **col-len-chen-ya-tous** \kə-lən-'kim-ət-əs, -'ki-mət-/ *adj.*

col-let \kə-'lɛt/ *n.* [MF, dim. of *col* collar, fr. L *collum* neck — more at *COLLAR*] (1528): a metal band, collar, ferrule, or flange; as: a: a small collar pierced to receive the inner end of a balance spring on a time-piece b: a circle or flange in which a gem is set

col-le-ter-al gland \kə-'lɛ-tir-ē-əl, -ter-/ *n.* (1870): a gland in female insects that secretes a cement by which the eggs are glued together or attached to an external object

col-lide \kə-'lɪd/ *vi* **col-lid-ed**; **col-lid-ing** [L *collidere*, fr. *com-* + *laedere* to injure by striking — more at *LESION*] (1700) 1: to come together with solid or direct impact 2: CLASH

col-lider \kə-'lɪd-ər/ *n.* (1980): a particle accelerator in which two beams of particles moving in opposite directions are made to collide

col-lie \kə-'lɪ-/ *n.* [prob. fr. E dial. *colly* (black)] (1631): any of a breed of large dogs developed in Scotland that occur in rough-coated and smooth-coated varieties

col-li-er \kə-'lɪ-ər/ *n.* [ME *collier*, fr. *col* coal] (13c) 1: one that produces charcoal 2: a coal miner 3: a ship for transporting coal

col-li-ery \kə-'lɪ-ər-ē/ *n.* *pl.* -li-er-ies (1635): a coal mine and its connected buildings

col-lie-shang-lee \kə-'lɪ-ə-shan-ē, -'kəl-/ *n.* [perh. fr. *collie* + *shang* (kind of meal)] (1737): SQUABBLE, BRAWL

col-li-gate \kə-'lɪ-gāt/ *vb.* -gāt-ed; -gāt-ing [L *colligatus*, pp. of *colligare*, fr. *com-* + *ligare* to tie — more at *LIGATURE*] *vt.* (1545) 1: to bind, unite, or group together 2: to subsume (isolated facts) under a general concept ~ *vi.*: to be or become a member of a group or unit — **col-li-ga-tion** \kə-'lɪ-gə-shən/ *n.*

col-li-ga-tive \kə-'lɪ-gāt-iv/ *adj.* (1901): depending on the number of particles (as molecules) and not on the nature of the particles (pressure is a ~ property)

col-li-mate \kə-'lɪ-māt/ *vb.* -mat-ed; -mat-ing [L *collimatus*, pp. of *collimare*, MS var. of *collineare* to make straight, fr. *com-* + *linea* line] (1837) 1: to adjust the line of sight of (a transit or level) 2: to make (as rays of light) parallel — **col-li-ma-tion** \kə-'lɪ-mā-shən/ *n.*

col-li-ma-tor \kə-'lɪ-māt-ər/ *n.* (1865) 1: a device for producing a beam of parallel rays (as of light) or for forming an infinitely distant virtual image that can be viewed without parallax 2: a device for obtaining a beam of molecules, atoms, nuclear particles, or X rays of limited cross section

col-lin-ear \kə-'lɪn-ē-ər, -kə-/ *adj.* [ISV] (1863) 1: lying on or passing through the same straight line 2: having axes lying end to end in a straight line (~ antenna elements) — **col-lin-ear-ly** \-lɪn-ē-ər-ē-əl/ *adv.*

col-lins \kə-'lɪn-/ *n.* [prob. fr. the name *Collins*] (1939): a tall iced drink consisting of soda water, sugar, lemon or lime juice, and liquor (as gin)

col-lin-sia \kə-'lɪn-zə-, -kə-/ *n.* [NL, genus name, fr. *Zaccheus Collins* 1831 Ann. botanist] (1821): any of a genus (*Collinsia*) of U.S. biennial or annual herbs of the figwort family

col-lis-ion \kə-'lɪz-ən/ *n.* [ME, fr. L *collisio*; *collisio*, fr. *collisus*, pp. of *collidere*] (15c) 1: an act or instance of colliding ~ *CLASH* 2: an encounter between particles (as atoms or molecules) resulting in exchange or transformation of energy — **col-lis-ion-al** \-lɪz-ən-əl, -ən-/ *adj.*

col-lis-ion course *n.* (1944): a course (as of moving bodies or antithetical philosophies) that will result in collision or conflict if continued unaltered

col-lo- — see *COLL-*

col-lo-cate \kə-'lɔ-kāt/ *vb.* -cat-ed; -cat-ing [L *collocatus*, pp. of *collocare*, fr. *com-* + *locare* to place, fr. *locus* place — more at *STALL*] *vt.* (1513) 1: to set or arrange in a place or position; esp.: to set side by side ~ *vi.* 2: to occur in conjunction with something

col-lo-ca-tion \kə-'lɔ-kā-shən/ *n.* (1605): the act or result of placing or arranging together; *specif.*: a noticeable arrangement or conjoining of linguistic elements (as words) — **col-lo-ca-tion-al** \-shən-əl, -shən-/ *adj.*

col-lo-di-on \kə-'lɔd-ē-ən/ *n.* [modif. of NL *collodium*; fr. Gk *kollōdes* glutinous, fr. *kolla* glue] (1851): a viscous solution of pyroxylin used esp. as a coating for wounds or for photographic films

col-lo-gue \kə-'lɔg/ *vi* **col-logued**; **col-logu-ing** [origin unknown] (1646) 1 dial: INTRIGUE, CONSPIRE 2: to talk privately; CONFER

col-loid \kə-'lɔɪd/ *n.* [ISV *coll-* + *-oid*] (1849) 1: a gelatinous or mucinous substance found in tissues in disease (as in the thyroid) or normally 2 a: a substance that is in a state of division preventing passage through a semipermeable membrane, consists of particles too small for resolution with an ordinary light microscope, and in suspension or solution fails to settle out and diffracts a beam of light b: a system consisting of a colloid together with the gaseous, liquid, or solid medium in which it is dispersed — **col-loi-dal** \kə-'lɔɪd-əl, -kə-/ *adj.*

col-loi-dal-ly \-lɔɪd-əl-ē-əl *adv.*

col-lop \kə-'lɔp/ *n.* [ME] (14c) 1: a small piece or slice esp. of meat 2: a fold of fat flesh

col-lo-qui-al \kə-'lɔ-kwē-əl/ *adj.* (1751) 1: of or relating to conversation ~ *CONVERSATIONAL* 2 a: used in or characteristic of familiar and informal conversation b: using conversational style — **col-lo-qui-al-ly** \-lɔ-kwē-əl-ē-əl *adv.*

col-lo-qui-al-ism \kə-'lɔ-kwē-əl-iz-əm/ *n.* (1810) 1 a: colloquial expression b: a local or regional dialect expression 2: colloquial style

col-lo-quist \kə-'lɔ-kwɪst/ *n.* (1792): SPEAKER

col-lo-quium \kə-'lɔ-kwē-əm/ *n.* *pl.* -qui-ums or -quia \-kwē-ə-/ [L *colloquy*] (1844): a usu. academic meeting at which specialists deliver addresses on a topic or on related topics and then answer questions relating to them

col-lo-quy \kə-'lɔ-kwē-/ *n.* *pl.* -quies [L *colloquium*, fr. *colloqui* to converse, fr. *com-* + *loqui* to speak] (15c) 1: a high-level serious discussion ~ *CONFERENCE* 2: CONVERSATION, DIALOGUE

col-lo-type \kə-'lɔ-tɪp/ *n.* [ISV] (1883) 1: a photomechanical process for making prints directly from a hardened film of gelatin or other colloid that has ink-receptive and ink-repellent parts 2: a print made by colotype

col-lude \kə-'lɪd/ *vi* **col-lud-ed**; **col-lud-ing** [L *colludere*, fr. *com-* + *ludere* to play, fr. *ludus* game — more at *LUDICROUS*] (1535): CONSPIRE, PLOT

col-lu-sion \kə-'lɪ-zhən/ *n.* [ME, fr. MF, fr. L *collusio*; *collusio*, fr. *collus*, pp. of *colludere*] (14c): secret agreement or cooperation esp. for an illegal or deceitful purpose — **col-lu-sive** \-lɪ-zɪv-, -zɪv/ *adj.* — **col-lu-sively** *adv.*

col-lu-vi-um \kə-'lɪ-vē-əm/ *n.* *pl.* -via \-vē-ə/ or -vi-ums [NL, fr. ML, offshoots, alter. of L *colluvies*, fr. *colluere* to wash, fr. *com-* + *lavare* to wash — more at *LAVE*] (ca. 1936): rock detritus and soil accumulated at the foot of a slope — **col-lu-vi-al** \-vē-əl/ *adj.*

col-ly \kə-'lɪ-/ *vi* **col-lied**; **col-ly-ing** [alter. of ME *colwen*, fr. (assumed) OE *colgan*, fr. OE *col* coal] *dial* chiefly Brit (15c): to blacken with or as if with soot

col-ly-ri-um \kə-'lɪ-rē-əm/ *n.* *pl.* -ia \-ē-ə/ or -i-ums [L, fr. Gk *kollyria* pessary, eye salve; fr. dim. of *kollyra* roll of bread] (14c): EYEWASH 1 **col-ly-wob-ble** \kə-'lɪ-wəb-əl/ *n.* *pl.* but -sing or -pl in constr [prob. by folk etymology, fr. NL *cholera morbus*, lit., the disease cholera] (1823): BELLYACHE

colo- — see *COL-*

col-o-bus monkey \kə-'lɔ-bəs-/ *n.* [NL *colobus*, fr. Gk *kolobos* docked, mutilated, fr. *kolos* docked; akin to L *clades* destruction — more at *HALT*] (1889): any of a genus (*Colobus*) of long-tailed African monkeys — called also *colobus*

col-o-cynth \kə-'lɔ-sɪn(ə)-th/ *n.* [L *colocynthis*, fr. Gk *kolokynthis*] (1565): a Mediterranean and African herbaceous vine (*Citrullus colocynthis*) related to the watermelon; also: its spongy fruit from which a powerful cathartic is prepared

col-log-a-rithm \kə-'lɔ-gə-rith-əm, -'lɛg-/ *n.* (1881): the logarithm of the reciprocal of a number

col-log-ne \kə-'lɔn/ *n.* [Cologne, Germany] (1814) 1: a perfumed liquid composed of alcohol and fragrant oils 2: a cream or paste of cologne sometimes formed into a semisolid stick — **col-log-ned** \-lɔnd/ *adj.*

col-lon \kə-'lɔn/ *n.* *pl.* colons or col-a \-lə/ [L, fr. Gk *kolon*] (14c): the part of the large intestine that extends from the cecum to the rectum — **col-lon-ic** \kə-'lɔn-ik/ *adj.*

col-on *n.* *pl.* colons or col-a \-lə/ [L, part of a poem, fr. Gk *kolon* limb, part of a strophe — more at *CALK*] (ca. 1550) 1 *pl.* *cola*: a rhythmic unit of an utterance; *specif.* in Greek or Latin verse: a system or series of from two to not more than six feet having a principal accent and forming part of a line 2 *pl.* colons a: a punctuation mark: used chiefly to direct attention to matter (as a list, explanation, or quotation) that follows b: the sign: used between the parts of a numerical expression of time in hours and minutes (as in 1:15) or in hours, minutes, and seconds (as in 8:25:30), in a bibliographical reference (as in *Nation* 130:20), in a ratio where it is usu. read as "to" (as in 4:1 read "four to one"), or in a proportion where it is usu. read as "is to" or when doubled as "as" (as in 2:1:8:4 read "two is to one as eight is to four")

col-on \kə-'lɔn, -kə-'lɔn/ *n.* [F, fr. L *colonus*] (1888): a colonial farmer or plantation owner

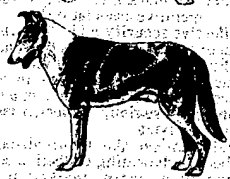
col-lon also col-lone \kə-'lɔn/ *n.* *pl.* col-lon-es \-lɔn-əs/ [Sp *colón*] (1892) — see *MONEY* table

col-on bacillus *n.* (ca. 1909): any of various bacilli (esp. genera *Escherichia* and *Aerobacter*) that are normally commensal in vertebrate intestines; esp.: one (*E. coli*) used extensively in genetic research

col-o-nel \kə-'lɔn-/ *n.* [alter. of *coronel*, fr. MF, modif. of OIt *colonnello* column of soldiers, colonel, dim. of *colonna* column; fr. L *columna*] (1548) 1 a: a commissioned officer in the army, air force, or marine corps ranking above a lieutenant colonel and below a brigadier general b: LIEUTENANT COLONEL 2: a minor titular official of a state esp. in southern or midland U.S. — used as an honorific title — **col-o-nel-ry** \-lɔn-ē-ri/ *n.*

Col-onel Blimp \kə-'lɔn-əl-'blɪmp/ *n.* [Colonel Blimp, cartoon character created by David Low] (1937): a pompous person with out-of-date or ultraconservative views; broadly: REACTIONARY — **Col-onel Blimp-ism** \-blɪmp-'pɪz-əm/ *n.*

col-o-nial \kə-'lɔn-ē-əl, -nəl/ *adj.* (1776) 1: of, relating to, or characteristic of a colony 2 often *cap.*: of or relating to the original 13 colonies forming the United States: as a: made or prevailing in America during the colonial period (~ architecture was a modification of English Georgian) b: adapted from or reminiscent of an American



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Laurence Echard 1730 Eng. historian]: a geographical dictionary;
also: a book in which something (as wines or restaurants) is treated
esp. in regard to geographic distribution and regional specialization

gazogene \gəz-ə-jen/ var of GASOGENE

gazpa-cho \gəz-pə-cho/ n pl -chos [Sp] (1845): a spicy soup
that is usu. made from chopped raw vegetables (as tomato, onion, pep-
per, and cucumber) and that is served cold.

GBX (V)je-bē n [code name] (1961): SARIN

Gelief n (1996): TREBLE CLEF

ge- or geo- comb form [ME geo-, fr. MF & L: MF, fr. L, fr. Gk ge-, geo-
fr. gel 1: earth 2: ground; soil (geantidine) (geophyte) 2: geo-

graphic: geography and (geopolitics)

ge-an-ti-cline \jē-ant-i-klīn/ also: ge-an-ti-clī-nal \jē-ant-i-klīn-īv/ n

(1874): a great upward flexure of the earth's crust — compare GEOSYN-

CLINE

gear \gə(r)/ n [ME gere, fr. ON gervi; akin to OHG garuwi equip-

ment, clothing; OE gearu ready — more at YARE] (14c) 1: a: CLOTH-

ING, GARMENTS b: movable property: GOODS 2: EQUIPMENT, PARA-

PHERNALIA (fishing ~) 3: a: the rigging of a ship or boat b: the

harness esp. of horses 4 dial chiefly Brit: absurd talk: NONSENSE 5

dial chiefly Brit: DOINGS 6 a (1): a mechanism that performs a

specific function in a complete machine (steering ~) (2): a toothed

wheel (3): working relation, position, or adjustment (in ~) b: one

of two or more adjustments of a transmission (as of a bicycle or motor

vehicle) that determine mechanical advantage, relative speed, and di-

rection of travel — gear-less \-ləs/ adj

gear vi (1851) 1: a: to provide (as machinery) with gearing b: to

connect by gearing c: to put into gear 2: a: to make ready for

effective operation b: to adjust so as to match; blend with, or satisfy

something (an institution ~ed to the needs of the blind) ~ vi 1: of

machinery: to be in or come into gear 2: to become adjusted so as to

match, blend, or harmonize

gear-box \gə(r)-baks/ n (1902) 1: TRANSMISSION 3 2: GEARING 2-

gearing \gə(r)-jɪŋ/ n (1833) 1: the act or process of providing or

fitting with gears 2: the parts by which motion is transmitted from

one portion of machinery to another; esp.: a train of gear wheels

gear-shift \gə(r)-ʃɪft/ n (1904): a mechanism by which the transmis-

sion gears in a power-transmission system are engaged and disengaged

gear wheel n (ca. 1874): a toothed wheel that gears with another piece

of a mechanism; specif.: COGWHEEL

Geat \gē, gā-ət, yaət/ n [OE Gēat] (bef. 12c): a member of a Scandi-

navian people of southern Sweden subjugated by the Swedes in the 6th

century — Geat-ish \-ish/ adj

gecko \gek-/ n pl geck-os or geck-oes [Malay ge'kok, of imit. origin]

(1711): any of numerous small harmless chiefly tropical and nocturnal

insectivorous lizards (family Gekkonidae)

gee \jē/ vb imper [origin unknown] (1628) — used as a direction to

turn to the right or move ahead; compare HAW ~ vi geed; gee-ing: to

turn to the right side

gee interj [euphemism for Jesus] (1895) — used as an introductory

expletive or to express surprise or enthusiasm

gee n (1926) 1: the letter g 2 [grand] slang: a thousand dollars

gee-gaw \jē-gəw/ n [prob. fr. E dial. geek, geck fool, fr. LG geck; fr. MLC]

(ca. 1942): a carnival performer often billed as a wild man whose act

usu. includes biting the head off a live chicken or snake

geese pl of GOOSE

geest \gast-, gēst/ n [G] (ca. 1828) 1: alluvial matter not of recent

origin on the surface of land; 2: loose material (as earth or soil)

formed by decay of rocks in a place

gee-whiz \jē-(h)wɪz/ adj (ca. 1934) 1: designed to arouse wonder

or excitement or to amplify the merits or significance of something esp.

by the use of clever or sensational language (play-by-play specialists

who wallow in ~ banality — Jack Gould) 2: marked by spectacular

or astonishing qualities or achievement (some people still look upon

atom power as in the ~ stage — Kiplinger, Washington Letter) 3

: characterized by wide-eyed enthusiasm, excitement, and wonder

gee whiz interj (1885): GEE

Ge-ez \gē-zē/ n [Ethiopic ge'ez] (1790): ETHIOPIC 1

gee-zer \gē-zər/ n [prob. alter. of Sc guiser (one in disguise)] (1885): a

quarry, odd, or eccentric man

ge-fil-te fish \gə-fil-tē/ n [Yiddish, lit., filled fish] (1892): balls or

cakes of seasoned minced fish simmered in a fish stock or baked in a

tomato sauce

ge-gen-schein \gə-gən-shīn/ n, often cap [G, fr. gegen against, counter-

+ schein shine] (1880): a faint light about 20° across on the celestial

sphere opposite the sun probably associated in origin with the zodiacal

light

Ge-hen-na \gē-hen-ə/ n [LL, fr. Gk Geenna, fr. Heb Gē Hinnōm, lit.,

valley of Hinnom] (1594) 1: a place or state of misery 2: HELL

la(2)

Geiger counter \gē-gər- or Geiger-Müller counter \-myul-ər-, -mil-

-mōl-/ n [Hans Geiger 1945 Ger. physicist & W. Müller, 20th cent.

Ger. physicist] (1924): an instrument for detecting the presence and

intensity of radiations (as cosmic rays or particles from a radioactive

substance) by means of the ionizing effect on an enclosed gas which

results in a pulse that is amplified and fed to a device giving a visible or

audible indication

gei-sha \gē-shā-, gē-/ n pl geisha or geishas [Jp, fr. gei art + -sha per-

son] (1887): a Japanese girl who is trained to provide entertaining and

lighthearted company esp. for a man or a group of men

gel \jēl/ n [gelatin] (1899) 1: a colloid in a more solid form than a sol

2: JELLY 2 3: GELATIN 3

gel vi gelled; gel-ling (1917): to change into or take on the form of a gel

— gel-able \jēl-ə-bəl/ adj

ge-län-de-läuf-er \gə-lən-də-lōi-fər/ n [G, fr. gelände (deriv. of OHG

hlouf- land) open fields + läuf-er runner, fr. laufen to run, fr. OHG hlouf-

faz- more at LAND, LEAP] (1933): a skier making a cross-country run

: LANGLAUFR

ge-län-de-sprung \-s(h)prʊŋ/ n [G, fr. gelände + sprung jump; akin to

OHG springan to jump — more at SPRING] (1931): a jump in skiing

made from a low crouching position with the aid of both ski poles and

usu. over an obstacle

gel-ate \jēl-āt/ vi gel-at-ed; gel-at-ing (1915): GEL

gel-a-tin also gel-a-tine \jēl-at-ēn/ n [F gélatine edible jelly, gelatin, fr. It

gelatina, fr. gelato, pp. of gelare to freeze, fr. L — more at COLD] (1800)

1: glutinous material obtained from animal tissues by boiling; esp.: a

colloidal protein used as a food, in photography, and in medicine 2: a

thin colored transparent sheet used over

a stage light to color it

ge-la-ti-ni-za-tion \jə-lat-ēn-ə-zā-shən, jēl-at-ēn-ē/ n (1843): the process

of converting into a gelatinous form or into a jelly — ge-la-ti-nize \jə-

lat-ēn-īz, jēl-at-ēn-ē/ vb

ge-lat-i-nous \jə-lat-nəs-, -n-əs/ adj (ca. 1724) 1: resembling gelatin or

jelly: viscous (a ~ precipitate) 2: of, relating to, or containing gelatin

— ge-lat-i-nous-ly adv — ge-lat-i-nous-ness n

ge-la-tion \jē-lā-shən/ n [L gelation-, gelatio, fr. gelatus, pp. of gelare]

(1854): the action or process of freezing

gel-a-tion \jē-lā-shən/ n [gel + -ation] (1902): the formation of a gel

from a sol

ge-la-to \jēl-ə-(t)ō/ n pl -ti -tē also -tos [It, lit., frozen] (1929): a soft

rich ice cream containing little or no air

geld \gēld/ n [OE geld, geld service, tribute; akin to OE gieldan to pay,

yield — more at YIELD] (bef. 12c): the crown tax paid under Anglo-

Saxon and Norman kings

geld vi [ME gelden, fr. ON gelda; akin to OE gelte young sow, Gk gallos

eunuch, priest of Cybele] (14c) 1: CASTRATE 2: to deprive of a natu-

ral or essential part (sick of workmen being ~ed of their natural

expression — A workman bereft of his profanity is a silent man —

Atlantic)

geld-ing \gēl-dɪŋ/ n [ME, fr. ON gelding, fr. gelda] (14c) 1: a cas-

trated animal; specif.: a castrated male horse 2 archaic: EUNUCH

ge-lée \zhə-lā/ n [F, jelly, fr. MF — more at JELLY] (1966): a cosmetic

gel

gel-id \jēl-əd/ adj [L gelidus, fr. gelu frost, cold — more at COLD] (1599)

: extremely cold: icy (~ water) (a man of ~ reserve — New York-

er) — gel-id-ty \jə-lid-ē-tē, jē-/ n — gel-id-ly \jēl-əd-lē/ adv

gel-ig-nite \jēl-ig-nīt/ n [gelatin + L ignis fire + E -ite — more at IG-

NITE] (1889): a dynamite in which the adsorbent base is largely potas-

sium nitrate or a similar nitrate usu. with some wood pulp

gel-lant also gel-ant \jēl-ənt/ n (1956): a substance used to produce

gelling

gelt \gēlt/ n [D & G geld & Yiddish gelt; all akin to OE geld 'geld] slang

(1529): MONEY

gem \jēm/ n [ME gemme, fr. MF, fr. L gemma bud, gem] (bef. 12c) 1

a: JEWEL b: a precious or sometimes semiprecious stone cut and

polished for ornament 2: a: something prized esp. for great beauty

or perfection b: a highly prized or well-beloved person 3: MUFFIN

gem vi gemmed; gem-ming (1610): to adorn with or as if with gems

gem- (jēm) comb form: geminal (gemdichloride)

Ge-mā-ra \gə-mār-ə-, -mōr-ə/ n [Aram gēmārā completion] (1613): a

commentary on the Mishnah forming the second part of the Talmud —

Ge-mā-ric \-ik/ adj — Ge-mā-rist \-st/ n

ge-mel-ni-schaft \gə-mīn-ʃaft/ n [G, community, fr. gemēin common,

general (fr. OHG gemein) + -schaft -ship — more at MEAN] (1937): a

spontaneously arising organic social relationship characterized by

strong reciprocal bonds of sentiment and kinship within a common

tradition; also: a community or society characterized by this relation-

ship — compare GESELLSCHAFT

gem-i-nal \jēm-ən-əl/ adj [L geminus twin] (1967): relating to or char-

acterized by two usu. similar substituents on the same atom — gem-i-

nal-ly \-lē/ adv

gem-i-nate \jēm-ə-nāt-, -nāt/ adj [L geminatus, pp. of geminare to dou-

ble, fr. geminus twin] (15c): arranged in pairs: DUPLICATE

gem-i-nate \jēm-ə-nāt/ vb -nated; -nat-ing vi (1637): DOUBLE ~ vi: to be-

come double or paired — gem-i-na-tion \jēm-ə-nā-shən/ n

Gem-i-ni \jēm-ə-nī-, -nī/ n [gem-ə-nē, n pl but sing in constr [L (gen.

Geminorum), lit., the twins (Castor and Pollux)] 1: the 3d zodiacal

constellation pictorially represented as the twins Castor and Pollux

sitting together and located on the opposite side of the Milky Way

from Taurus and Orion 2: a: the 3d sign of the zodiac in astrology

— see ZODIAC table b: one born under this sign

gem-ma \jēm-ə-/ n pl gem-mae \-ē/ [L] (1770): BUD; broadly: an asex-

ual reproductive body that becomes detached from a parent plant

gem-ma-tion \jēm-mā-shən/ n (1836): reproduction by gemmae

gem-mule \jēm-(jyū-ə)/ n [F, fr. L gemmula, dim. of gemma] (ca.

1841): a small bud: a: a minute particle that in the theory of pan-

genesis mediates the production in a new individual of cells like that in

which it originated b: an internal resistant reproductive bud (as of a

sponge)

gem-my \jēm-ē/ adj (15c) 1: having the

characteristics desired in a gemstone 2

: BRIGHT, GLITTERING

gem-ol-o-gist or gem-mol-o-gist \jē-māl-ə-jɪst,

jə-/ n (1931): a specialist in gems; specif:

one who appraises gems

gem-ol-o-gy or gem-mol-o-gy \jē-/ n [L gemma

gem] (1811): the science of gems — gem-ol-og-

-i-cal \jēm-ə-lā-i-kəl/ adj

ge-mot or ge-mote \gə-mōt-, -mōt/ n [OE gemōt,

fr. ge, (perspective prefix) + mōt assembly —

more at CO, MOOT] (bef. 12c): a judicial or

legislative assembly in Anglo-Saxon England

gems-bok \gēnz-bāk/ n [Afrik. lit., male

chamois, fr. G gemsbok, fr. gems chamois +

boek male goat, fr. OHG boc — more at BUCK]

(1777): a large and strikingly marked oryx

(Oryx gazella) formerly abundant in southern

Africa



gemsbok

\ə/ about \ʌ/ kitten, F table \ər/ further \ə/ ash \ə/ ace \ə/ dot, cart
 \aʊ/ out \ch/ chin \et/ bet \e/ easy \g/ go \h/ hit \i/ ice \j/ job
 \j/ sing \ō/ go \ō/ law \ōi/ boy \th/ thin \th/ the \ū/ loot \ū/ foot
 \y/ yet \zh/ vision \ā, k, ŋ, œ, œ, ie, ū, ŷ see Guide to Pronunciation